UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

Docket Nos.: 070-00371
070-00903

JUL 26 1996

License Nos.: SNM-368 (Terminated)
SNM-871 (Terminated)

James Chisholm, Treasurer
ELMATCO
P.O. Box 6506
Hamden, CT 06517

SUBJECT: INSPECTION NOS. 070-00371/96-001 & 070-00903/96-001

Dear Mr. Chisholm:

On May 30, 1996, Marie Miller of this office conducted a safety inspection at 99 and 107 Shelton Avenue (former licensed buildings 41H and 50 H) of activities previously authorized by NRC License Nos. SNM-368 and SNM-871. The inspection consisted of observations by the inspector, interviews with former licensee personnel, and a radiological survey performed by the inspector. Kevin Scott of the State of Connecticut, Department of Environmental Protection observed the NRC inspection and also conducted independent measurements. The findings of the inspection were briefly discussed with Carl Harris of your company at the conclusion of the inspection. A copy of the NRC inspection report is enclosed.

Radiological surveys were conducted in areas where radioactive material was previously used or stored by the former NRC licensees. These areas were determined to be free of radioactive contamination above NRC radiological release criteria. The facility is suitable for unrestricted use. We plan no further action on the property.

In accordance with Section 2.790 of the NRC's "Rules of Practice," Part 2, Title 10, Code of Federal Regulations, a copy of this letter will be placed in the Public Document Room. No reply to this letter is required.

Your cooperation with us is appreciated.

Sincerely,

/s/ Kottan

Ronald R. Bellamy, Chief
Decommissioning and Lab Branch
Division of Nuclear Materials Safety

060018

IE01

Enclosure:
Combined Inspection Report Nos. 070-00371/96-001 & 070-00903/96-001

cc w/enclosure:
Kevin McCarthy, Director
Monitoring and Radiation
Dept of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

Robert Bonito
UNC Naval Products
P.O. Box 981
Uncasville, CT 06382

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Report Nos. 070-00371/96-001 &
070-00903/96-001

Docket Nos. 070-00371 & 070-00903

License Nos. SNM-368 & SNM-871 (Both Terminated)

Licensees: Formerly Gulf General Atomics Company and
Formerly United Nuclear Corporation (UNC)
Buildings 41H and 50H, Shelton Avenue
New Haven, CT 06511

Facility Name: ELMATCO

Inspection At: 99 and 107 Shelton Avenue
New Haven, CT 06511

Inspection Conducted: May 30, 1996

Inspector: Marie Miller 7-17-96
Marie Miller, Senior Health Physicist date

Approved By: for R. J. Cotter 7-19-96
Ronald R. Bellamy, Chief date
Decommissioning and Laboratory Branch
Division of Nuclear Materials Safety

Inspection Summary: Announced survey of the facility for residual contamination on May 30, 1996. (Inspection Report Nos. 070-00371/96-001 and 070-00903/96-001)

Areas Inspected: Facilities and Radiological Scoping Survey

Results: All survey results were below NRC criteria for release for unrestricted use. The survey results demonstrate that the facilities meet NRC criteria for release for unrestricted use.

DETAILS

1. Persons Contacted

James Chisholm, ELMATCO
*Carl Harris, ELMATCO
*Robert Bonito, UNC
*Robert Gregg, UNC
*William Kirk, UNC
*Kevin Scott, CT Department of Environmental Protection

*Denotes those present during exit interview.

2. Background

The NRC initiated a program to ensure that licenses for facilities, where activities authorized by the Atomic Energy Commission (AEC) and/or the NRC were conducted, have been terminated in accordance with the NRC's current criteria for release for unrestricted use. As part of this program, the NRC's contractor, Oak Ridge National Laboratory (ORNL), identified License Nos. SNM-368 and SNM-871 as files describing a site that required additional review. NRC Region I staff reviewed the file, and determined that further information on this site was necessary to conclude that the facility meets the current criteria for release for unrestricted use.

The AEC issued special nuclear material License No. SNM-368 to Olin Mathieson Corporation in 1959, which was later transferred to United Nuclear Corporation Company in 1961. This license authorized use of enriched uranium and later source materials, including natural uranium, depleted uranium and thorium for research and nuclear fuel fabrication in New Haven Connecticut. The AEC also issued SNM-871 to United Nuclear Corporation in 1965, but the uranium fuel fabrication activities at the New Haven, CT, facilities were not added to this license until July 1974. Activities authorized by this license and the required records were transferred in 1971 to Gulf United Nuclear Corporation (after December 1974 to General Atomic Company, and after 1984 to Chevron). Records in the docket file for these licenses indicates that License No. SMN-368 was amended to release the New Haven facilities for unrestricted use on March 22, 1976 (authorized use of licensed materials continued at the Montville, facility only) and SNM-871 was terminated on July 14, 1975.

With respect to the ELMATCO facilities located in the former H-tract buildings 41 and 50, final surveys were conducted by the licensee and close-out surveys were conducted by the Nuclear Regulatory Commission. However, the release criteria used was for uranium only, yet the facility was authorized for thorium and much smaller quantities of plutonium. The average surface contamination release criteria for uranium is 5000 disintegrations per minute per 100 centimeters^2 (dpm/100 cm^2) in comparison to a more restrictive criteria of 1000 dpm/100 cm^2 for thorium.

Region I arranged for an inspection to confirm the status of the facilities and to determine the level of residual contamination. A view of the former facility is shown in Attachment 1. As stated by UNC representatives who

participated in this inspection, the pellet loading room and the storage room were the only locations in Buildings 50H and 41H (co-joined as one building) where unencapsulated material was used. There were no records of thorium or plutonium related products made at these facilities. If there were research activities, only limited quantities would have been used. The building is currently a manufacturing building with few modifications to the building wall and floor surfaces, post-licensed activities. No equipment used for fuel fabrication remained as reported in the NRC close-out report dated November 21, 1974.

3. Radiological Survey of Affected Areas

The inspector used a Ludlum Model 19 Micro-R meter (NRC # 33510, calibrated March 26, 1996) to measure exposure rates in the building and to make background radiation exposure rate measurements. The inspector also used a Ludlum Model 2210 ratemeter (NRC # 54829, calibrated March 14, 1996) with a Ludlum Model 43-68 gas flow proportional detector (NRC #54810) for alpha/beta fixed contamination measurements and Ludlum Model 18 rate meter (NRC # 54825, calibrated March 14, 1996) with Ludlum Model 44-9 Geiger-Muller pancake probe for alpha/beta and gamma fixed contamination measurements.

The building is a large one story facility bordered by Shelton Avenue and Gibbs Street, another former UNC/Gulf United Nuclear (now Olin owned and used) facility the length of one side and by parking areas on the remaining side. The current building is divided into two large areas by the interior wall with a small area in the back that serves as a contractor's machine shop. An exterior entrance to the building on the northeast corner of building 41 continues to function as the shipping/loading dock, as it did during receipt of source and special nuclear material.

The inspector performed a biased radiation-survey throughout the building with emphasis given to the two areas were unencapsulated material had been used/stored, and in cracks or joints in the floor. Measured exposure rates ranged from 6 to 10 μR/hour. Measurements were made both at contact and at one meter from surfaces. All measured exposure rates were consistent with the background radiation exposure rate of 7-9 μR/hr.

Fixed contamination readings ranged from 100 dpm to 750 dpm/100 cm^2. All survey measurements meet NRC release criteria as described in Attachment 2. One soil sample taken adjacent to the parking area was analyzed on a high resolution gamma spectrometry system for 10,000 seconds for uranium (U-235 and U-238), and thorium. The analysis showed 0.6 picoCuries of U-238 per gram of soil and 0.08 picoCuries of U-235 per gram of soil. These results are representative of natural background.

No safety concerns were identified.

4. Exit Meeting

The results of the inspection were discussed with the individual listed in Section 1.0.

Table 3. Acceptable Surface Contamination Levels

Nuclides[f]	Average[g h k]	Maximum[g i k]	Removable[g j k]
U-nat, U-235, U-238, and associated decay products	5000 dpm alpha/100 cm^2	15,000 dpm alpha/100 cm^2	1000 dpm alpha/100 cm^2
Transuranics, Ra-226, Ra-228, Th-228, Th-230, Pa-231, Ac-227, I-125, I-129	100 dpm/100 cm^2	300 dpm/100 cm^2	20 dpm/100 cm^2
Th-nat, Th-232, Sr-90, Ra-223, Ra-224, U-232, I-126, I-131, I-133	1000 dpm/100 cm^2	3000 dpm/100 cm^2	200 dpm/100 cm^2
Beta-gamma emitters (nuclides with decay modes other than alpha emission or spontaneous fission) except Sr-90 and others noted above	5000 dpm beta-gamma/ 100 cm^2	15,000 dpm beta-gamma/ 100 cm^2	1000 dpm beta-gamma/ 100 cm^2

[f] Where surface contamination by both alpha- and beta-gamma-emitting nuclides exists, the limits established for alpha- and beta-gamma-emitting nuclides should apply independently.

[g] As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector for background, efficiency, and geometric factors associated with the instrumentation.

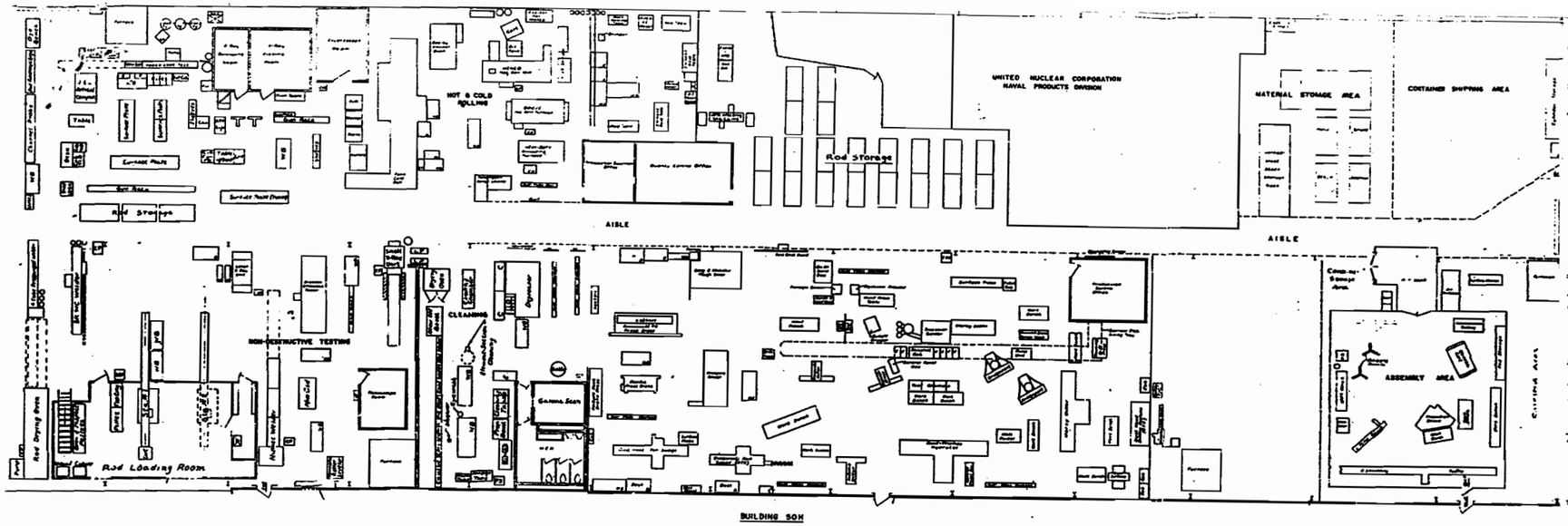
[h] Measurements of average contaminant should not be averaged over more than 1 square meter. For objects of less surface area, the average should be derived for each object.

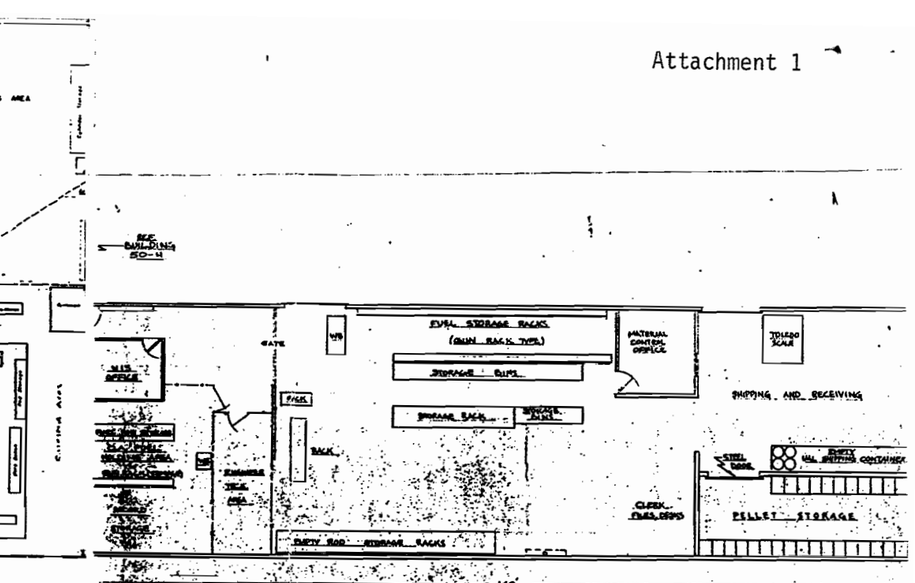
[i] The maximum concentration level applies to an area not more than 100 square centimeters.

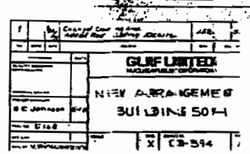
[j] The amount of removable radioactive material per 100 cm^2 of surface area should be determined by wiping that area with dry filter or soft absorbent paper, applying moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. When removable contamination on objects of less surface area is determined, the pertinent levels should be reduced proportionally and the entire surface area should be wiped.

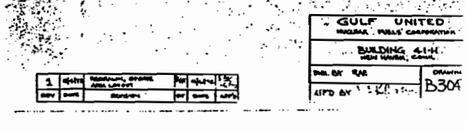
[k] The average and maximum radiation levels associated with surface contamination resulting from beta-gamma emitters should not exceed 0.2 mrad/hr at 1 cm and 1.0 mrad/hr at 1 cm, respectively, measured through not more than 7 milligrams per square centimeter of total absorber.

Attachment 1

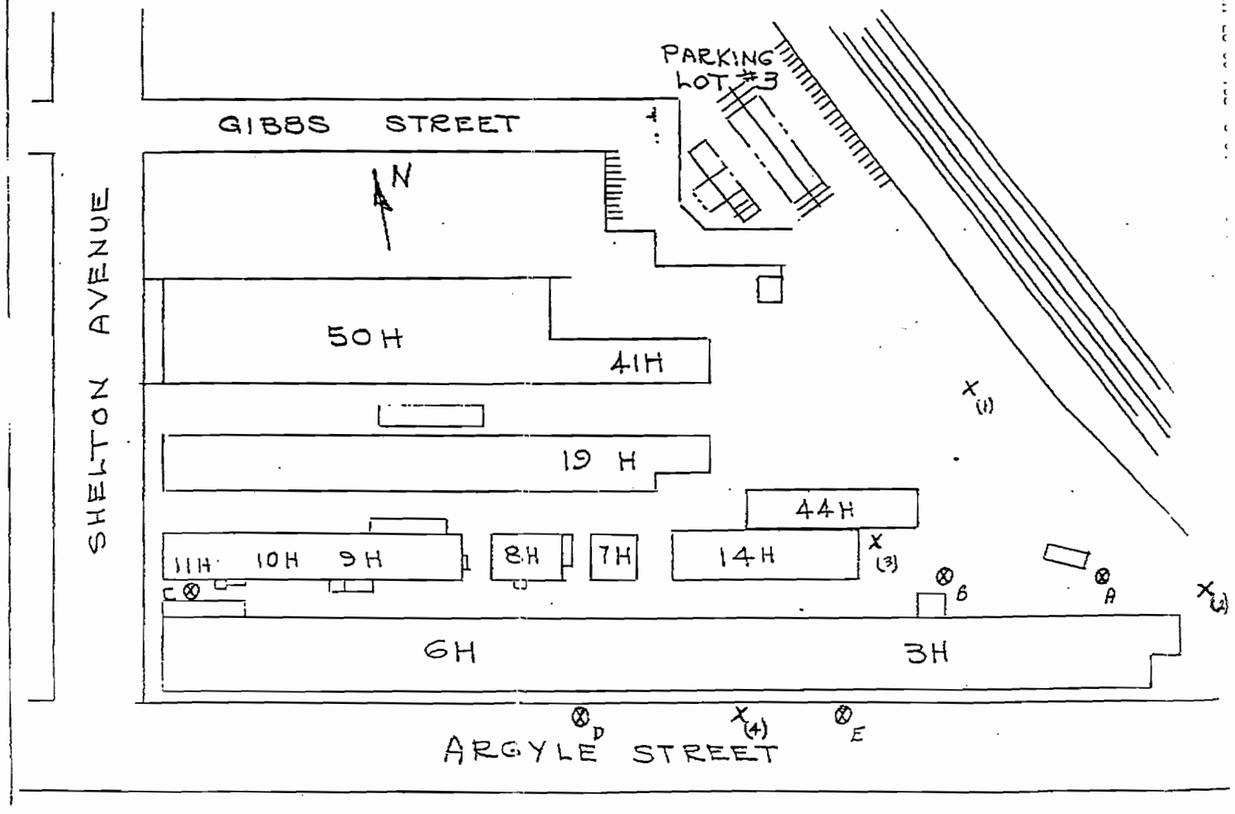








GULF UNITED NUCLEAR FUELS CORPORATION
REHABILITATION OF BUILDINGS 41H & 50H
ANSTEC, INC. BOSTON, MASS.



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